

## Claims

1. A lossless data compression system comprising a content addressable memory dictionary 30 and a coder 38, characterised by run length encoding means 39  
5 connected to receive the output of the coder 38, said encoding means 39 being arranged to count the number of times a match consecutively occurs at a predetermined dictionary location.
2. A system according to claim 1 in which the dictionary 30 is arranged so that at  
10 each search step a search tuple is loaded into the same address 50 of the dictionary.
3. A system according to claim 2 in which the run length encoder register means 39 is arranged to count the number of times the same search tuple is loaded into the same address 50 of the dictionary 30.  
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4. A system according to claim 2 or claim 3 in which a further address 56 in the dictionary 30 is reserved to indicate the number of times a search tuple is repeated.
5. A system according to claim 4 in which the further address varies in  
20 accordance with the size of the dictionary.
6. A system according to any preceding claim in which the dictionary 30 is arranged to hold data elements which are all of precisely equal length and each dictionary entry holds multiple data elements  
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7. The system according to claim 6 in which each dictionary entry holds 4 data elements

8. A system according to any preceding claim in which consecutive matches are indicated by transmission of a dictionary address which is not yet utilised for storage of dictionary data.
- 5 9. A lossless data decompression system comprising a content addressable memory dictionary 30 and a decoder 94, characterised by run length decoder register means 76 connected to receive the output of decoder 94
- 10 10. A lossless method of compressing data comprising the steps of ; -  
comparing a search tuple of fixed length with a plurality of tuples of said fixed length stored in a dictionary;  
indicating the location in the dictionary of a full or partial match or matches;  
selecting a best match of any plurality of matches;  
and encoding the match location and the match type;  
15 characterised by the further steps of; -  
loading each search tuple in turn into the same address in the dictionary;  
and counting the number of times identical tuples are matched consecutively into said address.